

SECTION 6

RESULTS

This section presents the effects determination for T&E species for each alternative. For those species with no potential habitat in the RGCP (as determined from literature review and field survey results) the determination of “no-effect” was applied. For those species with potential habitat in the RGCP, O&M activity and environmental measures associated with each alternative were assessed to determine potential effects.

6.1 PRESENCE OR ABSENCE OF T&E SPECIES

Habitat for listed aquatic species does not occur within the RGCP. The Chiricahua leopard frog inhabits rivers and other aquatic habitats at elevations of 3,281 to 8,890 feet. The Rio Grande drainage is occupied by these frogs only in Alamosa Creek in Socorro County, New Mexico, and Cuchillo Negro Creek in Sierra County, New Mexico. The Gila trout occurs in small, high mountain stream habitats, which do not occur in the RGCP (Table 6.1).

Similarly, most terrestrial T&E species require upland habitats that do not occur in the RGCP. These species would not be expected to be present and are excluded as potentially occurring within the RGCP.

Based on literature review, five species with potential habitats occur within the RGCP. These include the interior least tern, southwestern willow flycatcher, whooping crane, piping plover, and bald eagle (Table 6.1). However, results of the spring and fall/winter terrestrial field surveys found potential suitable habitat for only three species, the interior least tern, piping plover, and bald eagle. Table 6.2 presents the presence and absence analyses based on field surveys. Although suitable habitat for southwestern willow flycatcher was not found during field surveys, it has been documented adjacent to the USIBWC ROW in previous studies (Kay Casa Enterprises 2002; Ch2M Hill and Geomarine 2000). Suitable habitat for the whooping crane was not found. The findings are consistent with previous studies summarized in Section 3. Appendix H provides additional life history information for species with potential habitat in the RGCP.

6.2 EFFECTS DETERMINATION

The potential effects of O&M activities and environmental measures on T&E species are presented in Table 6.3. Potential effects could be short-term and direct as a result of construction activities and/or long-term as a result of restoring and improving riparian habitats. Currently, suitable habitat for listed species is largely absent in the RGCP. However, environmental measures could potentially result in development of suitable habitat. Specifically, measures associated with the Integrated USIBWC Land Management Alternative and Targeted River Restoration Alternative could potentially result in future vegetation communities consistent with T&E requirements.

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Table 6.1 Presence/Absence of Suitable Habitat Based on Literature Review

Common Name	Scientific Name	Listing Status*				Required Habitat	Presence/Absence Determination
		Federal Listing	El Paso Co. ‡	Doña Ana Co. †	Sierra Co. †		
Interior least tern	<i>Sterna antillarum</i>	E	E	E	---	River sandbars and beaches. Requirements correspond with unconsolidated shore/sandbars found within RGCP.	Potential habitat present
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	E	E	E	E	Brushy prairie and yucca flats. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	E	E	E	Prefers brushy fields and thickets along streams. Has been documented in areas outside of and adjacent to the RGCP. Requirements correspond with Riparian Shrubland/Woodland and Palustrine Woodland found within RGCP	Potential habitat present
Sneed pincushion cactus	<i>Coryphantha sneedii</i> var. <i>sneedii</i>	E	E	E	---	Limestone ledges in the Chihuahuan desert and grassland at 4,300-5,400 feet. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
Mexican spotted owl	<i>Strix occidentalis lucida</i>	E	T	S	S	Dense coniferous forest. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	---	T	T	Prefers timbered areas along coasts, large lakes, and rivers. Requirements correspond with Riparian Shrubland/Woodland and Palustrine Woodland found within RGCP. Has been documented in northern reaches of the RGCP (southern Sierra County). Potential habitat in the form of snags, are most common in northern reaches of the RGCP.	Potential habitat present
Black-footed ferret	<i>Mustela nigripes</i>	E	---	S	S	Mixed shrub; associated w/ prairie dogs. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
Whooping crane	<i>Grus americana</i>	E	---	E	E	Prefers marshes and prairie potholes in summer and winters in coastal marshes. Documented north of the RGCP at Bosque del Apache NWR (experimental population).	Potential habitat present

Table 6.1 Presence/Absence of Suitable Habitat as a Result of Literature Search (...continued)

Common Name	Scientific Name	Listing Status*				Required Habitat	Presence/Absence Determination
		Federal Listing	El Paso Co. ‡	Doña Ana Co. †	Sierra Co. †		
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	C	---	---	S	Rocky slopes of springs, streams and rivers. Invades stock tanks. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
American peregrine falcon	<i>Falco peregrinus anatum</i>	E	---	---	---	Cliffs, high river banks, large trees, tall buildings. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
Arctic peregrine falcon	<i>Falco peregrinus tundrius</i>	E	---	---	---	Cliffs, high river banks, large trees, tall buildings. Rests at Texas coast during migration. Habitat not present based on literature review and detailed vegetation community maps.	Habitat not present
Piping plover	<i>Charadrius melodus</i>	T migratory	---	---	---	Beaches, sand dunes, sparsely vegetated areas along oceans, rivers and streams.	Potential habitat present
Gila trout	<i>Oncorhynchus gilae</i>	E	---	---	T	Small, high mountain streams. Habitat not presents based on literature review and detailed vegetation community maps.	Habitat not present
Todsen's pennyroyal	<i>Hedeoma todsenii</i>	E	---	---	E	Pinion juniper woodland, sandy gypsum soil, north-facing slopes. Habitat not presents based on literature review and detailed vegetation community maps.	Habitat not present

T- threatened; E – endangered; S – sensitive; C – candidate;

* USFWS. 2004. U.S. Fish and Wildlife Southwest Region 2, New Mexico Ecological Services Field Office.

‡ Texas Parks and Wildlife. 2003. Annotated County List of Rare Species, El Paso County, Texas.

† New Mexico Game and Fish. 2004. County-specific state listings for Sierra and Doña Ana Counties, New Mexico. Correspondence, January 13, 2004.

Table 6.2 Presence or Absence Analyses for Species Based on Field Surveys

SPECIES WITH POTENTIAL HABITAT PRESENT IN RGCP	RESULTS OF FIELD SURVEY	PRESENCE/ ABSENCE HABITAT DETERMINATION
Interior least tern	At least one interior least tern was observed during fall surveys in September 2000, presumably in the process of migrating south. The interior least tern is the only listed species observed within the RGCP during field surveys. The tern was initially sighted in the Lower Mesilla Valley RMU, south of Mesilla Dam, in 2000. The solitary individual was observed in flight over the river and resting on unvegetated sand bars. Five additional sightings were made on the same date within 5 miles south of the first sighting, and may have been the same individual. Altered flow conditions in the river have eliminated any suitable nesting habitat in the RGCP; however, interior least terns may use the area for feeding or resting during migration.	Limited habitat present
Piping plover	Suitable habitat for migrating birds potentially exists on sandbars, however, this plover is known only as a rare spring (April) migrant, having been verified at Springer Lake (Colfax Co.) and reliably reported at Bosque del Apache National Wildlife Refuge in Socorro Canyon. No sightings have occurred in the RGCP.	Limited habitat present
Southwestern willow flycatcher	Suitable habitat is nonexistent within the RGCP. The thickets of willow and/or salt cedar are not dense enough and do not meet the 10 m (30 feet) wide criteria (see appendix H for description of requirements). Vertical structure of thickets in un-mowed areas is not suitable and the current hydrologic regime does not provide for saturated soils. Potential habitat does occur in areas adjacent to the USIBWC ROW (Seldon Canyon, Leasburg State Park and Picacho wetlands restoration pilot project).	Habitat not present
Bald eagle	Only marginal habitat (large trees) was found in the northern most portions of the RGCP near Percha Dam. Bald eagles have been sighted in previous studies in the northern portions of the RGCP.	Limited habitat present
Whooping crane	The whooping crane's preferred habitat of marshes and prairie potholes is rare to non-existent in the RGCP. There are no prairie potholes, and marsh vegetation is generally confined to small sand bar islands, arroyo mouths, and spillways. In addition, the migratory path of the whooping crane has been extensively documented, and the crane has never been observed to use the RGCP area.	Habitat not present

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Table 6.3 Potential Effect of O&M Activities and Environmental Measures on T&E Species

O&M ACTIVITY / ENVIRONMENTAL MEASURE*	ALTERNATIVE	POTENTIAL EFFECT TO LISTED SPECIES
Current O&M activities	NA, FCI, IULM, TRR	Long-term sediment removal/ disposal operations, channel bank protection and road maintenance are conducted. Frequency of sediment removal and channel bank protection occurs infrequently (minimal since 1961). Road maintenance occurs on a less than annual basis. Vegetation management by mowing either within USIBWC maintained areas or within leased areas is conducted on an annual basis. Maintenance activities could potentially create short-term noise disturbance to interior least terns and bald eagles within RGCP.
Levee rehabilitation	FCI, IULM, TRR	Activities could potentially create short-term noise disturbance to infrequent migrants, the interior least tern and bald eagle.
Modify grazing practices	FCI, IULM, TRR	No likely benefit as a result of implementing this measure
Modified grassland management in floodway	IULM, TRR	No likely benefit as a result of implementing this measure
Plant woody native vegetation and/or enhance existing bosques	IULM, TRR	No likely benefit within 20-year implementation period.
Bank shakedown	IULM	Earthwork and related construction activities could potentially create short-term noise disturbance to interior least terns and bald eagles infrequently over- wintering within RGCP. Development of riparian woodlands in conjunction with potential moist soil conditions as a result of bank shakedown could create conditions suitable for southwestern willow flycatcher nesting habitat. The lowering of banks would have a potential of creating interspersed wetlands and or moist soil conditions within the restoration areas. This combination of wetlands/wet conditions in conjunction with riparian development could result in long-term beneficial effects to southwestern willow flycatcher habitat. No likely benefit to bald eagles within 20-year implementation period would be expected.
Open former meanders	TRR	Earthwork and related construction activities could potentially create short-term noise disturbance to interior least terns and bald eagles infrequently over- wintering within RGCP. Development of riparian woodlands in conjunction with potential moist soil conditions as a result of opening former meanders could create conditions suitable for southwestern willow flycatcher nesting habitat. The opening of meanders would have a potential of creating interspersed wetlands and or moist soil conditions within the restoration areas. This combination of wetlands/wet conditions in conjunction with riparian development could result in long-term beneficial effects to southwestern willow flycatcher habitat. No likely benefit to bald eagles within 20-year implementation period would be expected.
Modify dredging at arroyos by creating embayments	TRR	No likely benefit as a result of implementing measure within 20-year implementation period. Dredging activities could potentially create short-term noise disturbance to interior least terns and bald eagles that infrequently over-winter within the RGCP.
Seasonal peak flows	TRR	No likely benefit as a result of implementing measure within 20-year implementation period would be expected.
Conservation easements	TRR	Management of conservation estimates could potentially benefit listed species. However, if suitable habitat currently exists in some conservation easements (<i>i.e.</i> those located in Seldon Canyon), implementation of measure (<i>i.e.</i> , salt cedar reduction) could adversely effect southwestern willow flycatcher habitat. Therefore, surveys would be conducted within conservation easements prior to environmental measure implementation. No likely benefit to bald eagles within 20-year implementation period would be expected.

* NA- No Action; FCI, Flood Control Improvement; IULM, Integrated USIBWC Land Management; TRR, Targeted River Restoration

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Table 6-4 presents the summary of effects to T&E species by alternative. Irrespective of alternative, short-term and direct impacts associated with alternatives are not likely to adversely affect T&E species because of the limited availability of T&E habitat with the RGCP. In the unlikely event that T&E species would be encountered in the RGCP (*e.g.* migrating), disturbance would be short-term and not likely to adversely affect individuals. In the case of voluntary conservation easements (Targeted River Restoration Alternative) located outside the RGCP, any adverse effects to potential T&E species would be entirely mitigable. Most foreseeable effects as a result of creating native vegetation communities would be positive.

6.2.1 No-Action Alternative

Currently, suitable habitat for all but three listed species (piping plover, bald eagle, and interior least tern) is absent from the RGCP (Table 6.2). Although piping plover habitat is potentially present, the migrant status of the piping plover and the lack of sighting within the RGCP result in a “no-effect” determination. For the bald eagle and interior least tern, O&M practices associated with the no-action alternative result in a “may affect – is not likely to adversely affect” determination.

Table 6-4 Effects Determination by Alternative

LISTED SPECIES	NO ACTION ALTERNATIVE	FLOOD CONTROL IMPROVEMENT ALTERNATIVE	INTEGRATED USIBWC LAND MANAGEMENT ALTERNATIVE	TARGETED RIVER RESTORATION ALTERNATIVE
Interior least tern	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect
Northern aplomado falcon	No-effect	No-effect	No-effect	No-effect
Southwestern willow flycatcher	No-effect	No-effect	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect
Sneed pincushion cactus	No-effect	No-effect	No-effect	No-effect
Mexican spotted owl	No-effect	No-effect	No-effect	No-effect
Bald eagle	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect	May affect – is not likely to adversely affect
Black-footed ferret	No-effect	No-effect	No-effect	No-effect
Whooping crane	No-effect	No-effect	No-effect	No-effect
Chiricahua leopard frog	No-effect	No-effect	No-effect	No-effect
American peregrine falcon	No-effect	No-effect	No-effect	No-effect
Arctic peregrine falcon	No-effect	No-effect	No-effect	No-effect
Piping plover	No-effect	No-effect	No-effect	No-effect
Gila trout	No-effect	No-effect	No-effect	No-effect
Todsens's pennyroyal	No-effect	No-effect	No-effect	No-effect

6.2.2 Flood Control Improvement Alternative

Suitable habitat for all but three listed species (piping plover, bald eagle, and interior least tern) would continue to be absent from the RGCP. Although piping plover habitat is potentially present, the migrant status of the piping plover and the lack of sighting within the RGCP result in a “no-effect” determination. For the bald eagle and interior least tern, O&M practices associated with the flood control improvement alternative result in a “may affect – is not likely to adversely affect” determination.

Reference communities developed by this Alternative include improved uplands and improved riparian woodlands. There would be no long-term effects (beneficial or adverse) to threatened and endangered species as a result of developing these reference communities.

6.2.3 Integrated USIBWC Land Management Alternative

Suitable habitat for four listed species (piping plover, bald eagle, interior least tern, and southwestern willow flycatcher) would be potentially present within the RGCP. Although piping plover habitat is potentially present, the migrant status of the piping plover and the lack of sighting within the RGCP result in a “no-effect” determination. O&M practices associated with the Integrated USIBWC Land Management alternative may result in a “may affect – is not likely to adversely affect” determination for the bald eagle and interior least tern. Development of native riparian woodlands could create conditions suitable for southwestern willow flycatcher nesting habitat. The lowering of banks would have a potential of creating interspersed wetlands and or moist soil conditions within the restoration areas. This combination of wetlands/wet conditions in conjunction with riparian development could result in long-term beneficial effects to southwestern willow flycatcher habitat. As a result a “may affect – is not likely to adversely affect” determination was made for the southwestern willow flycatcher under the Integrated USIBWC Land Management Alternative.

6.2.4 Targeted River Restoration Alternative

Suitable habitat for four listed species (piping plover, bald eagle, interior least tern, and southwestern willow flycatcher) would be potentially present within the RGCP. Although piping plover habitat is potentially present, the migrant status of the piping plover and the lack of a sighting within the RGCP result in a “no-effect” determination. O&M practices associated with the Targeted River Restoration Alternative may result in a “may affect – is not likely to adversely affect” determination for the bald eagle and interior least tern. Development of riparian woodlands in conjunction with potential moist soil conditions as a result of opening meanders could create conditions suitable for southwestern willow flycatcher nesting habitat. The opening of meanders would have a potential of creating interspersed wetlands and or moist soil conditions within the restoration areas. This combination of wetlands/wet conditions in conjunction with riparian development could result in long-term beneficial effects to southwestern willow flycatcher habitat.

In addition, implementation of the conservation easements could potentially benefit the southwestern willow flycatcher. However, if suitable habitat currently exists in some conservation easements, measure implementation (*i.e.*, salt cedar reduction) could adversely affect the species habitat. Although there is a potential likelihood of southwestern willow flycatcher habitat within conservation easements (primarily within Seldon Canyon), a determination of “may affect – is not likely to adversely affect” is made under the following mitigation conditions:

- T&E surveys would be conducted within conservation easements as they become available in order to determine presence or absence of southwestern willow flycatcher habitat. Species-specific surveys would be conducted prior to any vegetation treatments (salt cedar control) if potential habitat were found in conservation easements.
- Wherever possible, vegetation treatments (salt cedar control) would not be used in known habitats of listed species.
- Where treatments would be necessary in proximity to known listed or sensitive species’ habitats, the treatment would be selected to minimize the effect.
- Treatments should occur outside the nesting season, which is generally May through July. If treatments must occur, surveys should be conducted and active nests marked and avoided.

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